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1 [Mobile computing in next generation wireless networks](#)

Prathima Agrawal, David Famolari

August 1999 **Proceedings of the 3rd international workshop on Discrete algorithms and methods for mobile computing and communications**

Full text available: [pdf\(1.01 MB\)](#)

Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)

**Keywords:** IMT-2000, cdma2000, mobile computing, wireless data

2 [Cellular and hybrid networks: UCAN: a unified cellular and ad-hoc network architecture](#)

Haiyun Luo, Ramachandran Ramjee, Prasun Sinha, Li (Erran) Li, Songwu Lu

September 2003 **Proceedings of the 9th annual international conference on Mobile computing and networking**

Full text available: [pdf\(649.86 KB\)](#)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

In third-generation (3G) wireless data networks, mobile users experiencing poor channel quality usually have low data-rate connections with the base-station. Providing service to low data-rate users is required for maintaining fairness, but at the cost of reducing the cell's aggregate throughput. In this paper, we propose the Unified Cellular and Ad-Hoc Network (UCAN) architecture for enhancing cell throughput, while maintaining fairness. In UCAN, a mobile client has both 3G cellular link and IE ...

**Keywords:** 3G wireless networks, mobile ad-hoc networks, unified architecture

3 [Applications and OS: Wireless sensor networks for habitat monitoring](#)

Alan Mainwaring, David Culler, Joseph Polastre, Robert Szewczyk, John Anderson

September 2002 **Proceedings of the 1st ACM international workshop on Wireless sensor networks and applications**

Full text available: [pdf\(542.04 KB\)](#)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

We provide an in-depth study of applying wireless sensor networks to real-world habitat monitoring. A set of system design requirements are developed that cover the hardware design of the nodes, the design of the sensor network, and the capabilities for remote data access and management. A system architecture is proposed to address these requirements for habitat

09/686, 612

h c g e c f c

monitoring in general, and an instance of the architecture for monitoring seabird nesting environment and behavior is presented. The cu ...

**Keywords:** environmental monitoring, habitat monitoring, low power systems, sensor network architecture, wireless sensor networks

4 Special issue on wireless pan & sensor networks: A study of energy consumption and reliability in a multi-hop sensor network

Jonathan M. Reason, Jan M. Rabaey

January 2004 **ACM SIGMOBILE Mobile Computing and Communications Review**, Volume 8 Issue 1

Full text available:  [pdf\(477.91 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#)

For a moderate-size, multi-hop, sensor network, we present experimental measurements of radio energy consumption and packet reliability. We categorize the energy measurements by energy consumed in each radio state and for each traffic type. Packet reliability results are presented from a network and link perspective, whereas prior work only considered the former. We introduce a novel technique of application-aware radio duty cycling called on-demand spatial TDMA. When compared to the non-cycling ...

5 Bibliography of recent publications on computer communication

Martha Steenstrup

January 1998 **ACM SIGCOMM Computer Communication Review**, Volume 28 Issue 1

Full text available:  [pdf\(2.02 MB\)](#) Additional Information: [full citation](#), [abstract](#), [index terms](#)

The quantitative results presented in our SIGCOMM '97 paper [1] include numerous minor errors. These errors were caused by programming bugs that led to faulty analyses and simulations, and by inaccurate transcriptions during the preparation of the paper. Here we present corrected figures and tables, as well as corrections to values that appeared in the text of the original paper. The effect of correcting the errors is to reduce the differences between the results based on the proxy trace and the ...

6 Software engineering for mobility: a roadmap

Gruia-Catalin Roman, Gian Pietro Picco, Amy L. Murphy

May 2000 **Proceedings of the conference on The future of Software engineering**

Full text available:  [pdf\(2.07 MB\)](#) Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)

7 A survey of routing techniques for mobile communications networks

S. Ramanathan, Martha Steenstrup

October 1996 **Mobile Networks and Applications**, Volume 1 Issue 2

Full text available:  [pdf\(276.88 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

Mobile wireless networks pose interesting challenges for routing system design. To produce feasible routes in a mobile wireless network, a routing system must be able to accommodate moving users, changing network topology, and fluctuating link quality. We discuss the impact of node mobility and wireless communication on routing system design, and we survey the set of techniques employed in or proposed for routing in mobile wireless networks.

8 Applying packet techniques to cellular radio

N. F. Maxemchuk


December 1999 **Wireless Networks**, Volume 5 Issue 6

Full text available:  [pdf\(310.07 KB\)](#) Additional Information: [full citation](#), [references](#), [index terms](#)

9 Performance of routing schemes in wireless personal networks

Anna Della Torre Hać, Zhu Della Torre Zhu

March 1999 **International Journal of Network Management**, Volume 9 Issue 2

Full text available:  pdf(329.82 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

Routing efficiency in wireless communication networks depends critically on the propagation of location information into the network. We propose new dynamic traffic and state-dependent routing algorithms which are suitable for the demands of future wireless personal communications networks. Copyright © 1999 John Wiley & Sons, Ltd.

10 Using mobile code to create ubiquitous augmented reality

Kari J. Kangas, Juha Rönning

March 2002 **Wireless Networks**, Volume 8 Issue 2/3

Full text available:  pdf(239.77 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

Augmented reality systems supplement reality by adding virtual objects into a real-world view. In this article, we describe a flexible mobile code approach for implementing ubiquitous, active, and mobile augmented reality systems. We will concentrate primarily on solving the problem of how to acquire the data for the virtual objects in a way that will be flexible and expandable enough to be used in ubiquitous computing. To clarify the concepts and to illustrate our current research status, we wi ...

**Keywords:** augmented reality, mobile code, mobile computing, ubiquitous computing

11 Routing, coverage, and topology control: Analysis on the redundancy of wireless sensor networks

Yong Gao, Kui Wu, Fulu Li

September 2003 **Proceedings of the 2nd ACM international conference on Wireless sensor networks and applications**

Full text available:  pdf(203.33 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

Wireless sensor networks consist of a large number of tiny sensors that have only limited energy supply. One of the major challenges in constructing such networks is to maintain long network lifetime as well as sufficient sensing area. To achieve this goal, a broadly-used method is to turn off redundant sensors. In this paper, the problem of estimating redundant sensing areas among neighbouring wireless sensors is analysed. We present an interesting observation concerning the minimum and maximum ...

**Keywords:** coverage, redundancy analysis, wireless sensor networks

12 A low power, low bandwidth protocol for remote wireless terminals

George Hadjiyiannis, Anantha Chandrakasan, Srinivas Devadas

January 1998 **Wireless Networks**, Volume 4 Issue 1


Full text available:  pdf(474.12 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

We present a low bandwidth protocol for wireless multi-media terminals targeted towards low power consumption on the terminal side. With the widespread use of portable computing devices, low power has become a major design criterion. One way of minimizing power consumption is to perform all tasks, other than managing hardware for the display and input, on a stationary workstation and exchange information between that workstation and the portable terminal via a wireless link. A protocol for ...

**13 How to prove where you are: tracking the location of customer equipment**

Eran Gabber, Avishai Wool

November 1998 **Proceedings of the 5th ACM conference on Computer and communications security**

Full text available:  [pdf\(1.01 MB\)](#)

Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)

**14 Hierarchically-organized, multihop mobile wireless networks for quality-of-service support**

Ram Ramanathan, Martha Steenstrup

June 1998 **Mobile Networks and Applications**, Volume 3 Issue 1

Full text available:  [pdf\(429.81 KB\)](#)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

MMWN is a modular system of adaptive link- and network-layer algorithms that provides a foundation on which to build mechanisms for quality-of-service provision in large, multihop mobile wireless networks. Such networks are a practical means for creating a communications infrastructure where none yet exists or where the previously existing infrastructure has been severely damaged. These networks provide communications for such diverse purposes as tactical maneuvering and strategic planning ...

**15 System architecture directions for networked sensors**

Jason Hill, Robert Szewczyk, Alec Woo, Seth Hollar, David Culler, Kristofer Pister

November 2000 **Proceedings of the ninth international conference on Architectural support for programming languages and operating systems**, Volume 34 , 28 Issue 5 , 5

Full text available:  [pdf\(299.01 KB\)](#)


Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

Technological progress in integrated, low-power, CMOS communication devices and sensors makes a rich design space of networked sensors viable. They can be deeply embedded in the physical world and spread throughout our environment like smart dust. The missing elements are an overall system architecture and a methodology for systematic advance. To this end, we identify key requirements, develop a small device that is representative of the class, design a tiny event-driven operating system, and sh ...

**16 System architecture directions for networked sensors**

Jason Hill, Robert Szewczyk, Alec Woo, Seth Hollar, David Culler, Kristofer Pister

November 2000 **ACM SIGPLAN Notices**, Volume 35 Issue 11

Full text available:  [pdf\(1.32 MB\)](#)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

Technological progress in integrated, low-power, CMOS communication devices and sensors makes a rich design space of networked sensors viable. They can be deeply embedded in the physical world and spread throughout our environment like smart dust. The missing elements are an overall system architecture and a methodology for systematic advance. To this end, we identify key requirements, develop a small device that is representative of the class, design a tiny event-driven operating system, and sh ...

**17 A unified wireless LAN architecture for real-time and non-real-time communication services**

Sunghyun Choi, Kang G. Shin

February 2000 **IEEE/ACM Transactions on Networking (TON)**, Volume 8 Issue 1

Full text available:  [pdf\(298.12 KB\)](#)

Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#), [review](#)

**Keywords:** MAC protocol, QoS-sensitive communication, admission tests, dynamic time-division duplexing (D-TDD), location-dependent errors, polling, priority scheduling, wireless LAN

**18 Pen computing: a technology overview and a vision**

André Meyer

July 1995 **ACM SIGCHI Bulletin**, Volume 27 Issue 3

Full text available:  pdf(5.14 MB)

Additional Information: [full citation](#), [abstract](#), [citations](#), [index terms](#)

This work gives an overview of a new technology that is attracting growing interest in public as well as in the computer industry itself. The visible difference from other technologies is in the use of a pen or pencil as the primary means of interaction between a user and a machine, picking up the familiar pen and paper interface metaphor. From this follows a set of consequences that will be analyzed and put into context with other emerging technologies and visions. Starting with a short historic ...

**19 A hybrid handover protocol for local area wireless ATM networks**

Chai-Keong Toh

December 1996 **Mobile Networks and Applications**, Volume 1 Issue 3

Full text available:  pdf(960.44 KB)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

While handovers of voice calls in a wide area mobile environment are well understood, handovers of multi-media traffic in a local area mobile environment is still in its early stage of investigation. Unlike the public wireless networks, handovers for multi-media Wireless LANs (WLANs) have special requirements. In this paper, the problems and challenges faced in a multi-media WLAN environment are outlined and a multi-tier wireless cell clustering architecture is introduced. Design issues for ...

**20 PARO: supporting dynamic power controlled routing in wireless ad hoc networks**

Javier Gomez, Andrew T. Campbell, Mahmoud Naghshineh, Chatschik Bisdikian

September 2003 **Wireless Networks**, Volume 9 Issue 5

Full text available:  pdf(311.95 KB)

Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

This paper introduces PARO, a dynamic power controlled routing scheme that helps to minimize the transmission power needed to forward packets between wireless devices in ad hoc networks. Using PARO, one or more intermediate nodes called "redirectors" elects to forward packets on behalf of source-destination pairs thus reducing the aggregate transmission power consumed by wireless devices. PARO is applicable to a number of networking environments including wireless sensor networks, home networks ...

**Keywords:** ad hoc networks, power control, power optimization, routing protocols

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